AMENDMENT TO CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented) A process to cool hot gas from a partial oxidation reactor that is fluidly connected at its lower end to a horizontal duct, which horizontal duct is fluidly connected to a tube having a main tubular part in a vessel and an upstream tubular part positioned in said horizontal duct and sealingly connected to a tube sheet that is also positioned in said horizontal duct, by passing the hot gas through said tube, wherein (i) the exterior of said main tubular part is cooled by an evaporating liquid cooling medium flowing freely inside said vessel and around said tube, (ii) the upstream tubular part and the front of said tube sheet is cooled by passing a mixture of fresh liquid cooling medium and a defined part of the liquid cooling medium of activity (i) along the exterior of the upstream tubular part and the front of said tube sheet, and (iii) wherein the mixture of fresh liquid cooling medium and the defined part of the liquid cooling medium after being used to cool the upstream tubular part is used in activity (i) as cooling medium.

2. (Previously presented) The process according to claim 1, wherein the volume ratio of fresh liquid cooling medium and the defined part of the liquid cooling medium as extracted from activity (i) is between 1:4 and 4:1.

3. (Previously presented) The process according to claim 2, wherein the upstream tubular part is cooled by passing fresh liquid cooling medium and a defined part of the liquid cooling medium of activity (i) along the exterior of the upstream end of the tube co-current with the gas flowing within the tube.

4. (Previously presented) The process according to claim 3, wherein the hot gas has a temperature of between 1300 and 1500 °C and a temperature of between 240 and 450 °C after being subjected to the process.

5. (Previously presented) The process according to claim 4, wherein the hot gas is obtained in a gasification process, comprising the partial oxidation of a gaseous or liquid hydrocarbon feedstock to a mixture comprising mainly hydrogen and carbon monoxide.

6. (Previously amended) An apparatus for cooling hot gas from a partial oxidation reactor comprising:
(i) a vessel fluidly connected to said partial oxidation reactor by means of a horizontal duct, said vessel and horizontal duct being provided with a cooling medium compartment, an inlet to supply fresh cooling medium and a outlet for discharge of used cooling medium, said vessel and horizontal duct further provided with an inlet for hot gas and an outlet for cooled gas, at least one heat exchange tube fluidly connecting the inlet for hot gas and the outlet for cooled gas positioned in the cooling medium compartment, wherein the upstream end of said heat exchange tube is positioned in said horizontal duct and is sealingly attached to a tube sheet that is also positioned in said horizontal duct,
(ii) a means for extracting a volume of the cooling medium from the cooling medium compartment, and wherein
(iii) the upstream end of said heat exchange tube in said horizontal duct is provided with a cooling means comprising means to supply a mixture of the extracted liquid cooling medium and part or all of the fresh liquid cooling medium along the exterior of the upstream end of said heat exchange tube and the front of said tube sheet in said horizontal duct.

7. (Previously presented) The apparatus according to claim 6, wherein an annular sleeve is positioned around the upstream end of the heat exchange tube and wherein the annular sleeve has an opening to allow the mixture of extracted cooling medium and part or all of the fresh cooling medium to enter the space between the upstream end of the heat exchange tube and the annular sleeve and an outlet opening fluidly connected to the cooling medium compartment.

8. (Previously presented) The apparatus according to claim 7, wherein means to supply part of the fresh cooling medium to an elevated position in the vessel is present.

9. (Previously presented) The apparatus according to claim 6, wherein said cooling medium compartment is divided into a plurality of cooling medium compartments, including a first compartment from which a volume of cooling medium is extracted, and a second compartment into which the mixture of extracted cooling medium and fresh cooling medium is supplied, said second compartment being positioned in said horizontal duct.

10. (Canceled)

11. (Previously presented) The apparatus of claim 9, wherein an injector is present and is positioned in a wall dividing said first cooling medium compartment and said second cooling medium compartment.

12. (Previously presented) The process of claim 2, wherein the mixture of fresh liquid cooling medium and the defined part of the liquid cooling medium is injected into a compartment surrounding said upstream tubular part.

13. (Previously presented) The process of claim 1, wherein relatively cold cooling medium is supplied to an elevated position in said vessel to establish a natural circulation of the cooling medium.

14. (Currently amended) The process of claim 13 [[12]], wherein both fresh liquid cooling medium and extracted liquid cooling medium are fed to an elevated position in said vessel.

15. (Currently amended) The process of claim 12 [[11]], wherein in the event the flow of fresh liquid cooling medium is interrupted, the flow of the defined part of the cooling medium is continued to cool the inlet section of said upstream tubular part in said horizontal duct.